

Cod by-catch reducing gear: video observations of fish behavior from Fishing Vessels NEC-MP2000-2 in the Gulf of Maine from 2000-2002 (NEC-CoopRes project)

Website: <https://www.bco-dmo.org/dataset/3144>

Data Type: Cruise Results

Version: 1

Version Date: 2009-06-25

Project

» [Northeast Consortium: Cooperative Research](#) (NEC-CoopRes)

Program

» [NorthEast Consortium](#) (NEC)

Contributors	Affiliation	Role
Pol, Michael	Massachusetts Division of Marine Fisheries	Principal Investigator
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Abstract

Cod by-catch reducing gear: video observations of fish behavior from Fishing Vessels NEC-MP2000-2 in the Gulf of Maine from 2000-2002 (NEC-CoopRes project).

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Coverage

Spatial Extent: N:44.6 E:-65.5 S:42 W:-70.5

Temporal Extent: 2000-12-04 - 2001-01-05

Dataset Description

"Groundfish Trawl nets Designed to Reduce the Bycatch of Cod": Fishing log of experimental tows included in analysis.

Project Leader: Michael Pol Massachusetts Division of Marine Fisheries

[*final report*](#)

Two experimental trawl net designs substantially reduced catch rates of Atlantic cod *Gadus morhua* while allowing the targeting of flatfish *Pleuronectidae*, as compared to a standard net design. The "Ribas" and "topless" nets both modify the top half of a trawl net; the Ribas net by using large square mesh; the topless net by removing much of the netting in the top square of the net. Seventy pairs of alternate tows showed reductions of cod catch rates (kg/hr) that exceeded 76% for both nets. Catch rates of yellowtail flounder *Limanda ferruginea* below MLS (~33 cm TL) were more than 74% lower for both nets, compared to a standard flatfish trawl. Reductions of catch rates for winter flounder *Pseudopleuronectes americanus* below MLS (~33 cm TL) exceeded 61%. Significant reductions occurred in catch above MLS for yellowtail (>32%) and winter flounders (>44%) with some evidence that this reduction was lower for the topless trawl. Underwater video showed cod exiting the nets through the top mesh and through the gap made by the removal of twine. These results demonstrate that separation of Atlantic cod from flatfish is possible and practical. *(from final report abstract)*

associated datasets:

[Cod by-catch reducing gear: fishing log](#)

Acquisition Description

Two trawl nets, the "Ribas net" and a Faroe Island design prototype, were constructed and tested at sea on a commercial vessel, against a conventional two-seam groundfish net, which served as a control. The two experimental nets both modify the top half of a trawl net; the Ribas by using large square mesh and the Faroese by removing much of the twine at the top of the net. The project goal was to reduce cod as bycatch up to 75-90% (and perhaps dogfish (*Squalus acanthias*) bycatch as well). This net was designed to target the following species: yellow tail flounder (*Pleuronectes ferruginea*), winter flounder (*Pleuronectes americanus*), American plaice (*Hippoglossoides platessoides*), windowpane flounder (*Glyptocephalus*

cynoglossus), and skate (Rajidea).

Seventy pairs of alternate tows with the control net resulted in reductions of cod bycatch of >76% for both nets. Catch rates of sublegal yellowtail flounder were also >74% lower for both nets compared to the control. There were, however, reductions in the legal catch of yellowtail and winter flounders. Underwater video showed cod exiting the nets through the top mesh or gap made by removal of the twine. The results of this project have been presented to the New England Fishery Management Council Multispecies Plan Development Team, which encouraged participants to demonstrate the performance of the Ribas net in off-shore areas. The participants have continued the research with Saltonstall-Kennedy funding. However, modified versions of both nets were included as options in Amendment 13 to the Groundfish Fishery Management Plan. (from [final report](#))

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Parameters

Parameter	Description	Units
rope_interaction	which rope, head or foot, the fish interacted with in the video	
species	common name of fish	
net_type	type of experimental net: Ribas or topless trawl net	
time_elapsed	duration of video	minutes
behavior	observed net escape behavior	unitless
number	number of fish exhibiting observed behavior	fish
date_local	local date	unitless
day_local	local day of month; 1-31	unitless
month_local	local month of year: 1-12	unitless
year	year	unitless
yrday_local	local day and decimal time. eg. 326.5 for the 326th day of the year or November 22 at 1200 hours (noon)	unitless

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Instruments

Dataset-specific Instrument Name	Trawl
Generic Instrument Name	Beam Trawl
Dataset-specific Description	two experimental trawl nets, Ribas net and topless net.
Generic Instrument Description	<p>A beam trawl consists of a cone-shaped body ending in a bag or codend, which retains the catch. In these trawls the horizontal opening of the net is provided by a beam, made of wood or metal, which is up to 12 m long. The vertical opening is provided by two hoop-like trawl shoes mostly made from steel. No hydrodynamic forces are needed to keep a beam trawl open. The beam trawl is normally towed on outriggers, one trawl on each side. While fishing for flatfish the beam trawl is often equipped with tickler chains to disturb the fish from the seabed. For operations on very rough fishing grounds they can be equipped with chain matrices. Chain matrices are rigged between the beam and the groundrope and prevent boulders/stones from being caught by the trawl. Shrimp beam trawls are not so heavy and have smaller mesh sizes. A bobbin of groundrope with rubber bobbins keeps the shrimp beam trawl in contact with the bottom and gives flatfish the opportunity to escape. Close bottom contact is necessary for successful operation. To avoid bycatch of most juvenile fishes selectivity devices are assembled (sieve nets, sorting grids, escape holes). While targeting flatfish the beam trawls are towed up to seven knots, therefore the gear is very heavy; the largest gears weighs up to 10 ton. The towing speed for shrimp is between 2.5 and 3 knots. (from: http://www.fao.org/fishery/geartype/305/en)</p>

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Deployments

NEC-MP2000-2

Website	https://www.bco-dmo.org/deployment/57989
Platform	Fishing Vessels
Report	http://northeastconsortium.org/ProjectFileDownload.pm?report_id=92&table=project_report
Start Date	2000-12-19
End Date	2002-05-29
Description	multiple vessels

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Project Information

Northeast Consortium: Cooperative Research (NEC-CoopRes)

Website: <http://northeastconsortium.org/>

Coverage: Georges Bank, Gulf of Maine

The Northeast Consortium encourages and funds cooperative research and monitoring projects in the Gulf of Maine and Georges Bank that have effective, equal partnerships among fishermen, scientists, educators, and marine resource managers. The Northeast Consortium seeks to fund projects that will be conducted in a responsible manner. Cooperative research projects are designed to minimize any negative impacts to ecosystems or marine organisms, and be consistent with accepted ethical research practices, including the use of animals and human subjects in research, scrutiny of research protocols by an institutional board of review, etc.

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Program Information

NorthEast Consortium (NEC)

Website: <http://northeastconsortium.org/>

Coverage: Georges Bank, Gulf of Maine

The Northeast Consortium encourages and funds cooperative research and monitoring projects in the Gulf of Maine and Georges Bank that have effective, equal partnerships among fishermen, scientists, educators, and marine resource managers. At the 2008 Maine Fisheremen's Forum, the Northeast Consortium organized a session on data collection and availability. Participants included several key organizations in the Gulf of Maine area, sharing what data are out there and how you can find them. The Northeast Consortium has joined the Gulf of Maine Ocean Data Partnership. The purpose of the GoMODP is to promote and coordinate the sharing, linking, electronic dissemination, and use of data on the Gulf of Maine region. The Northeast Consortium was created in 1999 to encourage and fund effective, equal partnerships among commercial fishermen, scientists, and other stakeholders to engage in cooperative research and monitoring projects in the Gulf of Maine and Georges Bank. The Northeast Consortium consists of four research institutions (University of New Hampshire, University of Maine, Massachusetts Institute of Technology, and Woods Hole Oceanographic Institution), which are working together to foster this initiative. The Northeast Consortium administers nearly \$5M annually from the National Oceanic and Atmospheric Administration for cooperative research on a broad range of topics including gear selectivity, fish habitat, stock assessments, and socioeconomics. The funding is appropriated to the National Marine Fisheries Service and administered by the University of New Hampshire on behalf of the Northeast Consortium. Funds are distributed through an annual open competition, which is announced via a Request for Proposals (RFP). All projects must involve partnership between commercial fishermen and scientists. The Northeast Consortium seeks to fund projects that will be conducted in a responsible manner. Cooperative research projects should be designed to minimize any negative impacts to ecosystems or marine organisms, and be consistent with accepted ethical research practices, including the use of animals and human subjects in research, scrutiny of research protocols by an institutional board of review, etc.

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Funding

Funding Source	Award
National Oceanic and Atmospheric Administration (NOAA)	unknown NEC-CoopRes NOAA

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